



SEQUENCE LISTING

<110> Vogels, Ronald  
Havenga, Menzo  
Bout, Abraham

<120> Gene delivery vectors provided with a tissue tropism for smooth muscle cells, and/or endothelial cells

<130> 2183-4231US

<140> US 09/444,284

<141> 1999-11-19

<150> EP 98203921.6

<151> 1998-11-20

<160> 24

<170> PatentIn version 3.0

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<211> 35

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<221> misc\_feature

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<210> 4

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<220>

<221> misc\_feature

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<210> 8

<211> 36

<212> DNA

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<220>  
<221> misc\_feature  
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<210> 14  
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<223> Description of Artificial Sequence: primer NY-UP

<400> 14  
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42

<210> 15  
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<212> DNA  
<213> Artificial Sequence

<220>  
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<223> Description of Artificial Sequence: primer NY-DOWN

<400> 15  
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<210> 16  
<211> 1746  
<212> DNA  
<213> Adenoviridae

<220>  
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accggtcctc caactgtgcc ttttcttact cctccctttg tatcccccaa tgggtttcaa  
120

gagagtcccc ctgggggtact ctctttgcgc ctatccgaac ctctagttac ctccaatggc  
180

atgcttgccg tcaaaatggg caacggcctc tctctggacg aggccggcaa ccttacctcc  
240

caaaatgtaa ccactgtgag cccacctctc aaaaaaacca agtcaaacat aaacctggaa  
300

atatctgcac ccctcacagt tacctcagaa gccctaactg tggctgccgc cgcacctcta  
360

atggtcgcgg gcaacacact caccatgcaa tcacaggccc cgctaaccgt gcacgactcc  
420

aaacttagca ttgccaccca aggaccctc acagtgtcag aaggaaagct agccctgcaa  
480

acatcaggcc ccctcaccac caccgatagc agtaccctta ctatcactgc ctcacccctt  
540

ctaactactg ccactggtag cttgggcatt gacttgaaag agcccattta tacacaaaat  
600

ggaaaactag gactaaagta cggggctcct ttgcatgtaa cagacgacct aaacactttg  
660

accgtagcaa ctggtcacagg tgtgactatt aataatactt ccttgcaaac taaagttact  
720

ggagccttgg gttttgattc acaaggcaat atgcaactta atgtagcagg aggactaagg  
780

attgattctc aaaacagacg ctttatactt gatgttagtt atccgtttga tgctcaaaac  
840

caactaaatc taagactagg acagggccct ctttttataa actcagccca caacttggat  
900

attaactaca acaaaggcct ttacttgttt acagcttcaa acaattccaa aaagcttgag  
960

gttaacctaa gcaactgcaa ggggttgatg tttgacgcta cagccatagc cattaatgca  
1020

ggagatgggc ttgaatttgg ttcacctaatt gcaccaaaca caaatcccct caaaacaaaa  
1080

attggccatg gcctagaatt tgattcaaac aaggctatgg ttcctaaact aggaactggc  
1140

cttagttttg acagcacagg tgccattaca gtaggaaaca aaaataatga taagctaact  
1200

ttgtggacca caccagctcc atctcctaac tgtagactaa atgcagagaa agatgctaaa  
1260



ctcactttgg tcttaacaaa atgtggcagt caaatacttg ctacagtttc agttttggct  
1320

gttaaaggca gtttggctcc aatatctgga acagttcaaa gtgctcatct tattataaga  
1380

tttgacgaaa atggagtgt actaaacaat tccttcctgg acccagaata ttggaacttt  
1440

agaaatggag atcttactga aggcacagcc tatacaaacg ctgttggatt tatgcctaac  
1500

ctatcagctt atccaaaatc tcacggtaaa actgccaaaa gtaacattgt cagtcaagtt  
1560

tacttaaacg gagacaaaac taaacctgta acactaacca ttacactaaa cggtacacag  
1620

gaaacaggag acacaactcc aagtgcatac tctatgtcat tttcatggga ctggtctggc  
1680

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1740

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1746

<210> 17  
<211> 1752  
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<220>  
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<222> (1722)..(1722)  
<223> n can be any nucleotide

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120

aaaccaccag gtgtattagc acttaattac aaagacccca ttgtaactga aaatggaacc  
180

cttacactca agctagggga cggaataaaa cttaatgccc aaggtcaact tacagctagt  
240

aataatatca atgttttgga gccccttacc aacacctcac aaggtcttaa actttcttgg  
300

agcgcccccc tagcagtaaa ggctagtgcc ctcacactta acacaagagc gcccttaacc  
360

acaacggatg aaagcttagc cttataaacc gcccctccca ttacagtaga gtcttcgcgt  
420

ttgggcttgg ccaccatagc ccctctaagc ttagatggag gtggaaacct aggtttaaat  
480

ctttctgctc ccctggacgt tagtaacaac aatttgcac tcaccactga aactccctta  
540

gttgtaaatt ctagcgggtgc cctatctgtt gctactgcag accccataag tggttcgcaac  
600

aacgctctta ccctacctac ggcagatccg ttaatgggtga gctccgatgg gttgggaata  
660

agtgtcacta gtcccattac agtaataaac gggttccttag ccttgtctac aactgctccc  
720

ctcaacagca caggatccac ttttaagtctg tctgttgcca atcctctgac tatttcacaa  
780

gacacattga ctgtttccac tggtaacggt cttcaagtgt cgggggtctca attagtaaca  
840

agaatagggg atggtttaac attcgataat ggggtcatga aagtaaactg tgccggggga  
900

atgagaactt ctggcggtag aataatttta gatgttaatt atccctttga tgcgagcaat  
960

aacctgtcct taagacgggg attgggacta atttataacc aatctacaaa ctggaactta  
1020

acaactgata ttagtaccga aaaaggttta atgttttagtg gcaatcaa at agctctta at  
1080

gcaggtcagg ggcttacatt taataatggc caacttaggg ttaagttggg agctggactt  
1140

atttttgatt caaacaataa cattgcctta ggcagcagca gcaacactcc atacgaccct  
1200

ctgacactgt ggacaactcc tgaccaccca ccaaactgca gcctcatata agagctagat  
1260

gcaaaactca ccctgtgctt acaaaaaaac ggatctattg ttaatggcat tgtaagttta  
1320

gtgggtgtta agggtaatct cctaaatatc caaagtacta ctaccactgt aggagtgc at  
1380

ttagtgtttg atgaacaggg aagattaatc acatcaaccc ctactgccct ggttcccca  
1440

gcttcgtggg gatatagaca aggccaatca gtgtctacca atactgttac caatgggtta  
1500

ggttttatgc ctaatgtgag tgcttaccct agaccaa atg ccagtgaggc taaaagcca  
1560

atggtaagtc tcacgtactt acagggagat acatctaaac ctataaca at gaaagttgca  
1620

tttaatggca ttacgtcgct aaatggatac tctttaacat tcatgtgggc aggtctatca  
1680

aactatataa atcagccttt ctctacacca tcctgctcct tntcttacat tgcccaagaa  
1740

taaatgcatt ag  
1752

<210> 18  
<211> 1071  
<212> DNA  
<213> Adenoviridae

<220>  
<221> misc\_feature

<223> /note="Ad5/fib16 chimeric fiber"

<400> 18

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120

agcccagatg gagttctaac tcttaaattg gttaatccac tcaactaccgc cagcggaccc  
180

ctccaactta aagttggaag cagtcttaca gtagatacta tcgatgggtc tttggaggaa  
240

aatataactg ccgaagcgc actcactaaa actaaccact ccataggttt attaatagga  
300

tctggcttgc aaacaaagga tgataaactt tgtttatcgc tgggagatgg gttggtaaca  
360

aaggatgata aactatgttt atcgttgga gatgggttaa taacaaaaaa tgatgtacta  
420

tgtgccaaac taggacatgg ccttgtgttt gactcttcca atgctatcac catagaaaac  
480

aacaccttgt ggacaggcgc aaaaccaagc gccaaactgtg taattaaaga gggagaagat  
540

tccccagact gtaagctcac tttagttcta gtgaagaatg gaggactgat aaatggatac  
600

ataacattaa tgggagcctc agaataact aacaccttgt ttaaaaacaa tcaagttaca  
660

atcgatgtaa acctcgcatt tgataatact ggccaaatta ttacttacct atcatccctt  
720

aaaagtaacc tgaactttaa agacaaccaa aacatggcta ctggaaccat aaccagtgcc  
780

aaaggcttca tgcccagcac caccgcctat ccatttataa catacgccac tgagacccta  
840

aatgaagatt acatttatgg agagtgttac tacaaatcta ccaatggaac tctctttcca  
900

ctaaaagtta ctgtcacact aaacagacgt atgttagctt ctggaatggc ctatgctatg  
960

aatttttcat ggtctctaaa tgcagaggaa gccccggaaa ctaccgaagt cactctcatt  
1020

acctccccct tcttttttttc ttatatcaga gaagatgact gaatgcatta g  
1071

<210> 19

<211> 1101

<212> DNA

<213> Adenoviridae

<220>

<221> misc\_feature

<223> /note="Ad5/fib28 chimeric fiber"

<400> 19

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120

ggattccaaa acttcccacc tgggggtcctg tcactcaaac tggctgaccc aatcaccatc  
180

gctaattgggg atgtctcact caagttggga ggcggactga cgggtggaaaa agagtctgga  
240

aacttaactg tgaaccctaa ggctcccttg caagttgcaa gtggacaatt ggaattagca  
300

tatgattctc catttgatgt taaaaacaat atgcttactc ttaaagcagg tcacggctta  
360

gcagttgtaa cgaaagacaa tactgattta caaccactaa tgggcacact tgttgtttta  
420

actggcaaag gcattggcac tggcacaagt gctcacgggtg gaaccataga tgtgagaata  
480

ggaaaaaacg gaagtctggc atttgacaaa aatggagatt tgggtggcctg ggataaagaa  
540

aatgacaggc gcactctatg gacaactcca gacacatctc caaattgcaa aatgagtgaa  
600

gtcaaagact caaagcttac tcttattctt acaaaatgcg gaagtcaaat tctaggaagt  
660

gtatctttgc ttgctgtaaa aggagaatat caaaatatga ctgccagtac taataagaat  
720

gtaaaaataa cactgctatt tgatgctaata ggagtcttgt tagaaggatc cagtcttgat  
780

aaagagtact ggaacttttag aaacaatgat tctactgtgt ctggaaaata tgaaaatgct  
840

gttccgttca tgcctaacat aacagcttat aaaccctgca attctaaaag ctatgccaga  
900

agtcacatat ttggaaatgt atatattgct gctaagccat ataatccagt ggttattaaa  
960

attagcttca atcaagagac acaaaacaat tgtgtctatt ctatatcatt tgactacact  
1020

tgctctaaag agtatacagg tatgcaattc gatgttacat ctttcacctt ctcctatata  
1080

gcccaagaat gaatgcatta g  
1101

<210> 20

<211> 1668

<212> DNA

<213> Adenoviridae

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<223> /note="Ad5/fib40-L chimeric fiber"

<220>

<221> misc\_feature

<222> (1588)..(1588)

<223> n can be any nucleotide

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tatgaacact acaatcccct tgacattcca tttattacac ccccgtttgc ttcttccaac  
120

ggcttgcaag aaaaacctcc gggagtcctc agcctgaaat aactgatcc acttacaacc  
180

aaaaacgggg ctttaacctt aaaattgggc acgggactaa acattgataa aaatggagat  
240

ctttcttcag atgctagcgt ggaagttagc gcccctatca ctaaaaccaa caaatcgta  
300

ggtttaaatt acactaagcc tctcgctctg caaataacg cgcttactct ttcttacaac  
360

gcgcccttta acgtagtaaa taataattta gctctaaata tgtcacagcc tgttactatt  
420

aatgcaaaca acgaactttc tctcttaata gacgccccac ttaatgctga cacgggcact  
480

cttcgccttc gaagtgatgc acctcttgga ctagtagaca aaacactaaa ggttttgttt  
540

tctagcccc tctatctaga taataacttt cttacactag ccattgaacg cccgctagct  
600

ctatccagta acagagcagt ggcccttaag tattcaccac ctttaaaaat agaaaacgaa  
660

aacttaaccc taagcacagg cggacctttt actgtaagcg ggggaaattt aaacctggca  
720

acatcggcac ccctctccgt gcaaaacaat tctctctcct taggggttaa cccgcctttt  
780

ctcatcactg actctggatt agctatggac ttaggagacg gtcttgcatt aggtggctct  
840

aagttaataa tcaatcttgg tccaggttta caaatgtcta atggagctat tacttttagca  
900

ctagatgcag cgctgccttt gcaatataaa aacaaccaac ttcaactcag aattggctcc  
960

gCGTctgctt taattatgag cggagtaaca caaacattaa acgtcaatgc caataccagc  
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aaaggTcttg ctattgaaaa taactcacta gttgttaagc taggaaacgg tcttcgcttt  
1080

gatagctggg gaagcatagc tgtctcacct actaccacta cccctaccac cctatggacc  
1140

accgcggacc cgtctcctaa cgccactttt tatgaatcac tagacgccaa agtgtggcta  
1200

gttttagtaa aatgcaacgg catggttaac gggaccatat ccattaaagc tcaaaaaggc  
1260

actttactta aaccacagc tagctttatt tcctttgtca tgtattttta cagcgacgga  
1320

acgtggagga aaaactatcc cgtgtttgac aacgaaggga tactagcaaa cagtgccaca  
1380

tggggttatc gacaaggaca gtctgccaac actaacgttt ccaatgctgt agaatttatg  
1440

cctagctcta aaaggatatcc caatgaaaaa ggttctgaag ttcagaacat ggctcttacc  
1500

tacacttttt tgcaagggtga ccctaacatg gccatatctt ttcagagcat ttataatcat  
1560

gcaatagaag gctactcatt aaaattcncc tggcgcggttc gaaataatga acgttttgac  
1620

atcccctgtt gctcatTTTC ttatgtaaca gaacaataaa tgcattag  
1668

<210> 21

<211> 1062

<212> DNA

<213> Adenoviridae

<220>

<221> misc\_feature

<223> /note="Adenovirus16 fiber sequence"



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<400> 21
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120

agcccagatg gagttctaac tcttaaagt gttaatccac tcactaccgc cagcggaccc
180

ctccaactta aagttggaag cagtcttaca gtagatacta tcgatgggtc tttggaggaa
240

aatataactg ccgcagcgcc actcactaaa actaaccact ccatagggtt attaatagga
300

tctggcttgc aaacaaagga tgataaactt tgtttatcgc tgggagatgg gttggtaaca
360

aaggatgata aactatgttt atcgctggga gatgggttaa taacaaaaaa tgatgtacta
420

tgtgccaaac taggacatgg ccttgtgttt gactcttcca atgctatcac catagaaaac
480

aacaccttgt ggacaggcgc aaaaccaagc gccaaactgtg taattaaaga gggagaagat
540

tccccagact gtaagctcac tttagttcta gtgaagaatg gaggactgat aaatggatac
600

ataacattaa tgggagcctc agaataact aacaccttgt ttaaaaacaa tcaagttaca
660

atcgatgtaa acctcgcat tgaataact ggccaaatta ttacttacct atcatccctt
720

aaaagtaacc tgaactttaa agacaaccaa aacatggcta ctggaaccat aaccagtgcc
780

aaaggcttca tgcccagcac caccgcctat ccatttataa catacgccac tgagacccta
840

aatgaagatt acatttatgg agagtgttac tacaaatcta ccaatggaac tctctttcca
900

ctaaaagtta ctgtcacact aaacagacgt atgttagctt ctggaatggc ctatgctatg
960

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aatttttcat ggtctctaaa tgcagaggaa gccccggaaa ctaccgaagt cactctcatt  
1020

acctccccct tctttttttc ttatatcaga gaagatgact ga  
1062

<210> 22

<211> 1074

<212> DNA

<213> Adenoviridae

<220>

<221> misc\_feature

<223> /note="Adenovirus5/chimeric fiber16 sequence"

<400> 22

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tatgaagatg aaagcagctc acaacacccc tttataaacc ctggtttcat ttcctcaaatt  
120

ggttttgcac aaagcccaga tggagttcta actcttaaatt gtgttaattcc actcactacc  
180

gccagcggac cctccaact taaagttgga agcagttcta cagtagatac tatcgatggg  
240

tctttggagg aaaatataac tgccgaagcg ccactcacta aaactaacca ctccataggt  
300

ttattaatag gatctggctt gcaaacaag gatgataaac ttgttttatt gctgggagat  
360

gggttggtta caaaggatga taaactatgt ttatcgctgg gagatgggtt aataacaaaa  
420

aatgatgtac tatgtgcaa actaggacat ggccttgtgt ttgactcttc caatgctatc  
480

accatagaaa acaacacctt gtggacaggc gcaaaaccaa ggcccaactg tgtaattaaa  
540

gagggagaag attccccaga ctgtaagctc acttttagttc tagtgaagaa tggaggactg  
600

ataaatggat acataacatt aatgggagcc tcagaatata ctaacacctt gtttaaaaac  
660

aatcaagtta caatcgatgt aaacctcgca tttgataata ctggccaaat tattacttac  
720

ctatcatccc ttaaaagtaa cctgaacttt aaagacaacc aaaacatggc tactggaacc  
780

ataaccagtg ccaaaggctt catgcccagc accaccgcct atccatttat aacatacgcc  
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actgagaccc taaatgaaga ttacatttat ggagagtgtt actacaaatc taccaatgga  
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actctctttc cactaaaagt tactgtcaca ctaaacagac gtatgtagc ttctggaatg  
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gcctatgcta tgaatttttc atggtctcta aatgcagagg aagccccgga aactaccgaa  
1020

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Lys	Cys	Val	Asn	Pro	Leu	Thr	Thr	Ala	Ser	Gly	Pro	Leu	Gln	Leu	Lys
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			Lys	Pro
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Asp